Wildlife Biological Evaluation Addendum (for Appendix D)

Forest Service

Easy Fire Recovery Project

August 17, 2004

This letter serves to document the reduction in planned salvage acres and the impact on the analysis and "Effects Determinations" on Threatened, Endangered, and Sensitive (TES) species from the Easy Fire Recovery Project.

The following table displays the change in planned harvest acres.

Alternative	DEIS Harvest Acres	FEIS Harvest Acres	% decrease
2	3,652	1,777	51%
3	2,820	1,298	54%
4	2,519	956	62%

The table shows that the planned harvest acres in each alternative have decreased by more than 50%. A decrease in harvested acres will not increase the effects on TES species. The result would be a decrease of impacts at best or no change in impacts.

The "Effects Determinations" for threatened or endangered species from this project was "No Effect". The decrease in harvest acres will not change those determinations.

The "Effects Determinations" for sensitive species program species that occur in the project area were "No Impact" or "May Impact individuals or habitat, but would not likely contribute to a trend towards Federal listing or loss of viability to the to the population or species". The decrease in harvest acres will not change those determinations.

/s/ Michael J. Gebben 17 August 2004
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Easy Fire Recovery Project

APPENDIX D - WILDLIFE BIOLOGICAL EVALUATION

For

Threatened, Endangered, and Sensitive (TES) Species

Easy Fire Recovery EIS

Malheur National Forest

Prairie City Ranger District

June 2004

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EFFECTS SUMMARY - THREATENED, ENDANGERED and SENSITIVE SPECIES

Table 1 – Threatened, endangered, and sensitive species considered in the analysis of the Easy Fire Recovery Project and the effects determination for the No Action and Action Alternatives.

Species	Status	Occurrence	Alt. 1 and 5	Alt.2	Alt. 3	Alt. 4
Bald Eagle Haliaeetus leucocephalus	T	HN	NE	NE	NE	NE
Gray Wolf Canis lupus	T	HD/N	NE	NE	NE	NE
Canada Lynx Lynx canadensis	T	HN	NE	NE	NE	NE
California wolverine Gulo gulo	S	HD/S	NI	NI	NI	NI
Pacific Fisher Martes pennanti	S	HD/S	NI	NI	NI	NI
Pygmy Rabbit Brachylagus idahoensis	S	HN				
American Peregrine Falcon Falcon peregrinus anatum	S	HN				
Gray Flycatcher Empidonax wrightii	S	HN				
Tricolored Blackbird Agelaius tricolor	S	HN				
Bobolink Dolichornyx oryzivorus	S	HN				
Upland Sandpiper Batramia longicauda	S	HN				
Western Sage Grouse Centrocercus urophasianus phaios	S	HN				
Bufflehead Bucephala albeola	S	HN				
Columbia Spotted Frog Rana luteiventris	S	HD/S	NI	MIIH	MIIH	NI

Status

E	Federally Endangered
T	Federally Threatened
S	Sensitive species from Regional Forester's list
C	Candidate species under Endangered Species Act

Occurrence

HD	Habitat Documented or suspected within the project are or near enough to be impacted by project activities
HN	Habitat Not within the project area or affected by its activities
D	Species Documented in general vicinity of project activities
S	Species Suspected in general vicinity of project activities
N	Species Not documented and not suspected in general vicinity of project activities

Effects Determinations

Threatened and Endangered Species

NE	No Effect
NLAA	May Effect, Not Likely to Adversely Affect
LAA	May Effect, Likely to Adversely Affect
BE	Beneficial Effect

Sensitive Species

NI	No Impact
MIIH	May Impact Individuals or Habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species
WIFV	Will Impact Individuals or habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of Viability to the population or species
BI	Beneficial Impact

INTRODUCTION

On July 12, 2002, a series of large thunderstorms passed through the Blue Mountains of Eastern Oregon and ignited numerous fires on the Malheur National Forest, including the Easy Fire. Several days of high daytime temperatures with strong northerly winds increased fire activity and expanded the fire to 5,839 acres before it was contained. The fire was completely within the Prairie City Ranger District, Malheur National Forest, located approximately 11 miles east of Prairie City, Oregon. The legal location of the fire includes all or portions of T12S, R35E, Sections 14, 15, 20-23, 26-29, 31-35 and T13S, R35E, Sections 3-5, Willamette Meridian, Grant County, Oregon.

Approximately 81% of the fire is contained within the Upper Middle Fork John Day River watershed and 19% within the Upper John Day River watershed. The three major drainages within the project area are Clear Creek, Easy Creek, and Mossy Gulch.

This Biological Evaluation (BE) analyzes the potential effects of the No Action and Action alternatives within the Easy project area on the Malheur National Forest. This BE satisfies the requirements of Forest Service Manual 2672.4 that requires the Forest Service to review all planned, funded, executed or permitted programs and activities for possible effects on proposed, endangered, threatened or sensitive species.

The following sources of information have been reviewed to determine which TES species, or their habitats, occur in the project area:

- Regional Forester's Sensitive Species List
- Forest or District sensitive species database(s) and the GIS mapping layer(s)
- Oregon Natural Heritage Program, Rare, Threatened and Endangered Plants and Animals of Oregon
- Project area maps and aerial photos.

The environmental baseline for each wildlife species includes description of the effects the Easy fire had on habitats.

PROJECT DESCRIPTION

See Chapter 1 of the Easy Fire Recovery Draft Environmental Impact Statement for a complete description of the project area and Chapter 2 for alternative descriptions, design criteria and mitigation.

The following table displays the number of acres proposed for harvest by Alternative and vegetation severity. Alternative 1, the 'No Action' Alternative proposes no harvest of dead and dying trees within the fire perimeter and is not displayed in the table.

Table 2: Proposed acres for harvest by Alternative and Vegetation Severity

Alternative	Vegetation severity		
	Low	Moderate	High
2	137 (18)*	1,370 (73)*	2,145 (71)*
3	131 (18)*	1,158 (62)*	1,531 (51)*
4	57 (8)*	721 (39)*	1,741 (58)*

* Numbers in parentheses are percentage of total acres of that severity that are proposed for harvest.

EFFECTS ANALYSIS

Listed Species

Bald Eagle

Haliaeetus leucocephalus

Status

Federal Status: Threatened (list 1-7-00-SP-588).
USDA-Forest Service (Region 6) Status: Threatened (USFS 2000)
State Status: Threatened (last revised 12/1998) (ODFW 2000)
Oregon Natural Heritage Program Status: List 1 (ONHP 2001)

Habitat and Existing Condition

During nesting season bald eagles prey largely on fish and, to a lesser extent, waterfowl and carrion. Nesting habitat includes clean water (lakes, rivers) with abundant fish and/or waterfowl populations, and large, wolfy perch trees and roost sites nearby. In the Pacific Northwest, bald eagle nests are usually in multistoried, predominantly coniferous stands with

old growth components near water bodies that support adequate food supply (U.S. Dept. Interior 1986).

They usually nest in the same territories each year and often use the same nest repeatedly which can result in very large nest structures, 2-3' deep and up to 5' in diameter. They will use alternate nests. Nest trees have stout upper branches to support the nest structure and usually provide an unobstructed view of an associated water body. Most nests in Oregon have been within 1/2 mile of water. The nearest known nest site is on the Emigrant Ranger District, approximately 40 miles south in the Silvies Valley. This site has been monitored since 1991; young were produced in 8 of 11 years.

On the Malheur National Forest, bald eagles congregate at winter roost sites during the late fall, winter, and early spring. The eagles roost and feed in Bear Valley, and along the South Fork John Day River, Middle Fork John Day River, and the main John Day River. They scavenge in agricultural valleys and wetlands, feeding primarily on carrion normally found in areas of cattle concentration and birthing, or where ranchers dispose of dead animals. They roost at night in mature forest stands, which provide a microclimate that helps protect them from cold weather and wind. Eagles typically arrive in early November and depart about the end of April; however, bald eagles have been reported in every month, but not during all months within any one year.

No winter roost sites are within the project area. The Easy fire reduced old growth, and therefore, reduces potential roost trees, but again, even prior to the fire, trees within the Easy area were not being used as roost trees.

Effects Determination

All Alternatives - Direct, Indirect and Cumulative Effects
The project area and adjacent lands are not used by bald eagles for nesting or winter roosting. This area may get minor use briefly by migrating birds. Therefore, there will be no direct, indirect, or cumulative effects from any of the alternatives for this project on nesting or roosting bald eagles, or their habitat.

This project will have **No Effect (NE)** on bald eagles.

Gray Wolf

Canis lupus

Status

Federal Status: Threatened (Fed. Reg. Vol. 68, No. 62 15804-15875, April 1, 2003 USFWS established three distinct population segments (DPS) and reclassified the Western DPS from endangered to threatened).
USDA-Forest Service (Region 6) Status: Threatened
State Status: Endangered (last revised 12/1998) (ODFW 2000)
Oregon Natural Heritage Program Status: List 2-extirpated (ONHP 2001)

Major Threats

Human-caused mortality is the major factor limiting the recovery of wolves with the majority of losses due to shooting, trapping and vehicle accidents. In addition, wolves, particularly juveniles, are susceptible to canine parvovirus and distemper.

Roads negatively affect this species by increasing human presence in wolf habitat and increasing the likelihood of negative contacts. A disproportionate number of human-caused mortalities occur near roads. These mortalities are mostly legal and illegal shooting resulting from human access provided by roads. Vehicle collisions account for additional mortalities. Thurber and others (1994) cite three studies (Jensen and others 1986, Mech and others 1988, Thiel 1985) indicating wolf packs would not persist where road densities exceeded about 1.0 mi/mi 2 (Wisdom et al. 2000).

Population Status and Trend
Currently there are populations of gray wolves establishing in Idaho and Montana. There are no known wolf packs in Oregon but dispersing wolves could establish in remote areas within the State.

Source Habitat Trend
Source habitats span a broad elevational range and include all terrestrial community groups except exotic herblands and agriculture (Wisdom et al. 2000).

Source habitats for gray wolf likely occurred throughout the basin historically. The current extent of habitat, albeit largely unoccupied, is similar to the historical distribution except for the Columbia Plateau, Lower Clark Fork (northern Idaho), and Upper Clark Forks (central western Montana) ERUs (Ecological Reporting Unit), where habitat is more patchily distributed than it was historically. The overall trend in source habitats across the basin was neutral.

Existing Condition
Historically, wolves occupied all habitats on this Forest (Wisdom et al. 2000), but are currently considered extirpated.

In 1999, a collared wolf (B-45-F) from the experimental, non-essential Idaho population traveled to the three Blue Mountain National Forests and stayed until it was captured and returned to Idaho. Another wolf was found dead near Baker City in the spring of 2000. A third wolf was illegally killed south of Pendleton, Oregon also in 2000.

The Easy Fire area would have and basically still does provide habitat useable by wolves and their prey. The habitat type doesn't seem to be quite as important as the presence of prey species. Big game, their primary prey species, use of the fire area, primarily for foraging, has already been noted.

Effects Determination

All Alternatives - Direct, Indirect and Cumulative Effects
Wolves are limited by prey availability and are threatened by negative interactions with humans. Generally, land management activities are compatible with wolf protection and recovery, especially actions that manage ungulate populations. Habitat and disturbance effects

are of concern in denning and rendezvous areas. No such habitat is currently occupied in Oregon.

The determination for project activities for all the alternatives on the is **NO EFFECT (NE)** for the following reasons:

- No populations currently occupy the Malheur National Forest.
- No denning or rendezvous sites have been identified on the Malheur National Forest.
- There is an abundance of prey on the forest; therefore prey availability is not a limiting factor.
- Activities proposed in the alternatives do not affect potential denning or rendezvous sites, and will not affect prey species or their habitat.

Canada Lynx

Lynx canadensis

Status

Federal Status: Threatened (list 1-7-00-SP-588).
USDA-Forest Service (Region 6) Status: Threatened
State Status: Endangered (last revised 12/1998) (ODFW 2000)
Oregon Natural Heritage Program Status: List 2

Major Threats

The Canada lynx has a large range in northern North America, particularly in Alaska and Canada. Declines have occurred in some populations, but are apparently still widespread and relatively abundant in most of the historical range, though population data are lacking for many areas. Lynx distribution at southern latitudes, including mountainous regions in Northeast Oregon, represent the occupation of marginally suitable habitat that decreases in quality and availability as one continues to move southward.

Habitat loss, fragmentation and susceptibility to over harvest (trapping) are major concerns across the lynx's range (TNC 1999). Factors contributing to these concerns include; forest management activities, fire suppression, landscape level catastrophic wildfire, roads, developments that destroy habitat, grazing, predator control and trapping, competition with other predators, and human disturbances (winter recreation off-highway travel and highways) that displace lynx from their habitat (Wisdom et al. 2000, TNC 1999, and Witmer et al. 1998).

Population Status and Trend

Empirical data for distribution within the Interior Columbia River Basin are scarce, and data on abundance of lynx populations are not available. McKevley and others (1999) recently summarized all known lynx locations in the united Sates, which provides a framework for designing and conducting future surveys and demographic studies of lynx populations (Wisdom et al. 2000).

Source Habitat Trend

Basin-wide, source habitat was projected to have increased moderately or strongly in 47 percent of the watersheds. The Blue Mountains ERU has undergone a positive absolute (+26.93%) and relative (>100.00%) change in source habitat availability (moderate or strong increases in more than 50 percent of the watersheds). An increase in Blue Mountains source

(denning) habitat was most influenced by an increase in mid- and late-seral montane forest and mid-seral subalpine forests (Wisdom et al. 2000).

Habitat

Lynx are typically associated with large tracts of high elevation boreal forests where their physical adaptations of long legs and broad paws allow them to negotiate deep snow and effectively hunt their principal prey, the snowshoe hare (*Lepus americanus*). Lynx require a mix of late and early seral habitats to meet their cover and food needs. Mature forests provide the lynx with denning space and hiding cover, while early seral habitats provide a prey base (Koehler 1990). Intermediate successional stages may serve as travel cover, but function primarily to provide connectivity within a forested landscape. Home range size varies considerably and is usually dependent upon prey availability. Typical home range territories are 45-155 mi2 (Ruggiero 1994).

Lynx denning habitat is characterized as having large woody debris that provides security and thermal cover and mature overstory canopies. These elements combine to provide both vertical and horizontal structural diversity (Ruggiero 1994). Habitat quality, as measured by the availability of alternate den sites, appears to be an important factor in kitten survival when disturbance occurs. Primary denning sites are often in large hollow logs, beneath windfall or upturned roots, or in brush piles in dense thickets (Brittell et al. 1989). Lynx den sites are in forests with a high density of downfall logs in patches scattered over 5-10 acres (>40 logs per 40 yards [46 m] lying 1 to 4 feet [0.3-1.3 m] above the ground) (Koehler 1990). Pockets of dense forest must be interspersed with prey habitat (Grange 1965). Pockets of late and old forest, at least 5-10 acres (2-4 ha), should be left for denning sites. Management units should be designed to provide travel corridors, especially along ridges and saddles, as lynx are more likely to use these areas.

Lynx primarily prey on snowshoe hare (*Lepus americanus*). Their diet also includes squirrels (*Tamiasciurus spp*.), ducks (*Anas spp*), and upland game birds; especially grouse (*Dendrogapus spp*). Preferred foraging habitat is found in early to mid-successional, densely stocked, mixed conifer forests that support plentiful populations of snowshoe hare for hunting (Ruggiero 1994). Good hare habitat is provided by stands with a high stem and lower bough density (approximately 2,400 to 13,000 stems and boughs per acre) on trees that are small (less than 4-inch dbh with 1-inch diameter stems and boughs preferred) but above snow level. Lynx populations usually fluctuate in a cycle with snowshoe hare populations, peaking about every 9 to 10 years (Burt and Grossenheider 1976, Fox 1978, Mech 1980, U.S.D.I. Fish and Wildlife Service 1994). Because of these volatile swings, their populations became very low about every 10 years. Therefore, they can be rare in any one given area at these times.

Deep snow and cold temperatures are often associated with lynx habitat. Other predators, such as the wolverine, may need to migrate to lower elevations under these conditions in order to follow their food source. Lynx, however, remain and thrive under these conditions due to their physical adaptations to low temperatures, deep snow and ability to successfully hunt the snowshoe hare.

Because lynx populations fluctuate with snowshoe hare populations, events that create snowshoe hare cover and forage generally benefit lynx (Koehler and Brittell 1990). These events might have negative short-term effects by eliminating denning habitat. However, as forest succession progresses after a disturbance, such as fire, insect outbreak, or logging,

stands transition from non-habitat to forage and then to denning habitat. A certain level of dynamic cycling it seems is essential for maintaining optimal habitat.

Travel corridors provide security during movement from denning areas to foraging areas and during dispersal. Cover that is generally greater than 8 feet tall with stem densities in excess of 180 trees per acre allows for movement of lynx within their home ranges (Koehler 1990). Riparian corridors, forested ridges, and saddles appear to be favored travel ways. Lynx avoid large openings (> 300 feet from cover) that have the potential to disrupt movement between isolated populations (Ruggiero 1994).

Lynx can be managed by managing for their prey. Snowshoe hare populations increase dramatically following disturbance, particularly fire. However, snowshoe hare recolonization may not occur until 6 to 7 years following logging, and that snowshoe hare densities may not reach their maximum for another 20 to 25 years (Koehler and Brittell 1990). This depends on site conditions and type of treatment. As stands become older (about 20 to 30 years old), their benefits to snowshoe hare decrease.

Distribution

The geographic range of lynx includes all of Alaska and Canada (except the northeastern parts of Northwest Territories) and the United States south to a line from southern Oregon to southern Colorado, southern Iowa, southern Indiana and southern Maryland (Verts and Carraway 1998). Lynx are considered to have historically resided in 16 of the contiguous United States (Maine, New Hampshire, Vermont, New York, Massachusetts, Pennsylvania, Michigan, Wisconsin, Minnesota, Washington, Oregon, Idaho, Montana, Wyoming, Utah, and Colorado) based on historical observations, trapping records, and other documented evidence. The occurrence of lynx in most of the contiguous United States is likely the result of transient dispersal during declines in population density of their primary prey, snowshoe hares (Quinn and Parks 1987).

Oregon Distribution

Oregon is considered to be at the southern fringe of the lynx's range, and animal density and habitat use are expected to differ from further north where habitat is considered more suitable. The lynx has always been rare in Oregon (Koehler and Aubry 1994). In Oregon, there are twelve verified records of lynx documented between 1897-1993, six of which were taken from the Blue Mountains (Ruggiero et al. 1999, Verts and Carraway 1998). Of these 12 known specimens, one each was collected in 1897, 1964, 1974, and 1993, 2 in 1920, and 3 each in 1916 and 1927. Three of the six specimens taken in the Blue Mountains were collected near the town of Granite, approximately 10 miles northeast of the project area. The remaining six specimens were taken from the Wallowa Mountains, the Cascade Mountains, the Willamette Valley, the Stinkingwater Mountains and the Steens Mountains.

Peaks in density of lynx populations in Alaska reportedly occurred in 1916-1918, 1926-1928, 1963- 1966, and 1974-1975 (Quinn and Parks 1987). Peak periods somewhat correlate to collections made in Oregon. Verts and Carraway (1998) suggest that lynx occurrence in Oregon may be dispersers from occupied areas farther north that immigrate into the area and persist for a short time.

Local Surveys

Surveys using a hair sampling protocol that targets lynx were conducted on the Malheur National Forest in 1999, 2000 and 2001. The hair sampling surveys did not detect the presence of lynx. In the early 1990's, winter track and camera station surveys were conducted on the Malheur National Forest to inventory forest carnivores, but no lynx were detected. Recent unconfirmed lynx sightings have been reported along the Middle Fork of the John Day River, Blue Mountain Ranger District, and in the Reynolds Creek Subwatershed, Prairie City Ranger District. Based on the limited available information, the Fish and Wildlife Service cannot substantiate the historically or current presence of a resident lynx population in Oregon (USF&WS 2000). Verts and Carraway (1998) conclude that there is no evidence of self-maintaining populations in Oregon and USDI (1997) considered lynx "extirpated" from Oregon. Additional surveys and research are warranted before lynx are considered as having self-maintaining populations in Oregon.

Local Habitat

Potential habitat on the Malheur National Forest is defined as stands that are subalpine fir, lodgepole pine, Engelmann spruce, or moist grand fir types. These plant associations most frequently occur above 5000'. Lynx require a mix of early and late seral habitats to meet their food and cover needs. Early seral habitats provide the lynx with a prey base, while mature forests provide denning space and hiding cover (Koehler 1990). Pockets of dense forest must be interspersed with prey. Lynx den sites are in forests with a high density of downfall logs in patches scattered over 5-10 acres (>40 logs per 40 yards [46 m] lying 1 to 4 feet [0.3-1.3 m] above the ground) (Koehler 1990). Favored travel ways within and between habitat areas include riparian corridors, forested ridges, and saddles. During the winter lynx frequent areas with a substantial snow pack. On the Malheur National Forest, snow pack at elevations above 5000' varies from 1.6 to 4 feet (Malheur National Forest 2001).

Habitat was identified on the Forest based on plant association and elevation. Guidance and recommendations for mapping habitat types suitable for lynx was provided by the Lynx Biology Team (22 August 2000) and in the Lynx Conservation Assessment and Strategy (LCAS) 2nd Ed. August 2000.

- In the western U.S., lynx occurrences generally are found only above 4,000 ft. elevation (McKelvey et al. 2000). Areas below 4,000 ft. usually should be excluded. On the Malheur National Forest, primary vegetation was identified as subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*), lodgepole pine (*Pinus contorta*), and aspen (*Populous tremuloides*) plant associations (see Table 1 for complete list of lynx habitat plant associations) (Koehler and Aubry. 1994. P. 86). On the Malheur National Forest, primary vegetation was defined as these plant associations above 5000 feet elevation. McKelvey (1999, Pg. 243) states that 70% of all lynx occurrences in the Western U.S. occurred above 1,500 meters (4,920 feet). Lynx habitat occurs in coniferous forests that have snowy winters (Ruggerio et al. 2000). On the Malheur National Forest, snow pack at elevations over 5000 feet varies from 1.6 to 4 feet (Malheur National Forest 2001) and plant associations defining lynx habitat most frequently occur above 5,000 feet. Note that elevation ranges

are specified in the geographic area descriptions in the Lynx Conservation Assessment and Strategy.

- Subalpine fir habitat types dominated by cover types of spruce/fir, Douglas fir, and seral lodgepole pine should be mapped as primary vegetation. These types must be present to support foraging, denning and rearing of young.

- Other cool, moist habitat types (e.g., some Douglas-fir, grand fir) may contribute to lynx habitat where intermingled with and immediately adjacent to primary vegetation. These types are described as secondary vegetation.

The Lynx Conservation Assessment and Strategy (Ruediger et al. 2000, Koehler 1990) suggests the need for at least 6400ac of primary vegetation to support survival and reproduction and to constitute an LAU. In the Upper Middle Fork John Day River watershed (south of Hwy 7) and the Upper John Day watershed (south of Hwy26) there are 231 acres of primary vegetation comprised of several separate stands and 8469 acres of secondary vegetation. With only 231ac there is an insufficient amount of primary vegetation in this area to meet the criteria for lynx habitat as expressed in the LCAS. For secondary vegetation to contribute to lynx habitat it must be "intermingled with and immediately adjacent to primary vegetation". The assumption could be made that for the secondary vegetation to be intermingled with the secondary vegetation the number of acres of each should be about equal or there should be a greater amount of primary vegetation. The amount of secondary vegetation far exceeds the amount of primary vegetation in this area. This area should not be considered to be an LAU.

This block of secondary and primary vegetation that includes the Easy Fire area is disjunct from the LAU's in the Monument Wilderness area and to the north. There is no secondary vegetation that connects this block to other nearby blocks of primarily secondary vegetation. Hwy 7 and Hwy 26 also interrupt the continuity of secondary vegetation with a large block to the north.

Existing Condition

Although there are several unconfirmed sightings of lynx in Grant County, there is no indication that lynx occur in the project area. Research indicates that lynx need approximately 10 to 15 square miles of high quality habitat to support a functional home range (Ruggiero et al. 1994). The three subwatersheds affected by the Easy fire contain mostly secondary habitat with a small amount of primary habitat. Within the fire perimeter the following amounts of primary and secondary vegetation were present; primary 159 ac., and secondary 3604ac.

Based on the results of snow tracking surveys and snowshoe hare sightings on the district, it is reasonable to assume that hare exist in the Easy Fire analysis area in thickets and where dense young lodgepole pine have branches down to the ground to provide food for hares in the winter. Denning habitat could have been provided in areas such as DOG (Dedicated Old-growth) and ROG (Replacement Old-growth) 04364PP.

Region 6 developed a network of designated habitat areas to provide blocks of old growth coniferous forest across the landscape designed to support old growth management indicator

species populations and allow for dispersal of individuals. These are known as Dedicated Old Growth (DOG) areas and Replacement Old Growth (ROG) areas. Replacement areas may not have all the characteristics of old growth, but are managed to achieve those characteristics so that when a Dedicated Old Growth area no longer meets the needed habitat requirements, the replacement old growth area can take its place.

On the Malheur National Forest, these old growth blocks were designed to provide the necessary network of habitat areas for pileated woodpecker and pine marten. Although these old growth areas are managed specifically for these two species, the Forest Plan assumes the old growth network will provide habitat for many other old growth associated species as well. During field reconnaissance no areas with sufficient amounts of down wood to provide denning habitat were noted. The DOG and ROG were greatly affected by the fire, both experienced mostly High to Moderate Vegetation Severity burning with small amounts of Low Severity to No burning within the fire's perimeter. The areas that burned with moderate to high vegetation severity left little to no down wood.

Habitat in the analysis area and on the district is more likely to support an occasional lynx wandering through or looking for a territory than it is to support a home range or population for an extended time.

Past harvest activities in Clear Creek and adjacent subwatersheds Dry Fork, Bridge, and Reynolds Creek may have had an effect on habitat for snowshoe hare and therefore on lynx habitat. Regeneration treatments in stands with high canopy closure effect habitat when openings are more than 300 feet across. Open areas discourage use by lynx and disrupt their movements (Ruggiero et al. 1994), but will provide quality foraging habitat in about 15 years. Past burning activities in harvest units reduced the fuel level and the level of down logs. It would have been many decades before denning habitat was provided in those areas due to the reduction of down wood.

The Easy Fire resulted in many snags whose density varies across the fire area. Most of these snags will be on the ground within 15 years with 90%+ on the ground within 30 - 50 years (Everett et al. 1999, Morrison and Raphael 1993, Knotts 1997). Areas with high snag concentrations that are replanted or naturally regenerated could provide potential denning habitat within 80 - 100 years.

Effects

All Alternatives - Direct, Indirect and Cumulative Effects

Under all alternatives better than 90% of the snags that are currently standing or that would be left standing will be on the ground within 30 - 50 years (Everett et al. 1999). It will take another 50 or more years for the regenerating stands to attain the height and structure that would make them suitable for denning. However, the smaller diameter down wood that would have accumulated from the snags falling would be deteriorating to the point that cover they could have provided would be unusable. Only those areas with numerous large snags may be able to provide cover in the 80 – 100 years that it will take for planted or regenerating stands to provide suitable structure.

The connectivity corridor that existed through the fire area pre-fire no longer exists. Under the 'No Action' alternative this connectivity should be re-established in 80 – 100 years. The action alternatives could speed up this process due to conifer planting in the burned area will hasten the reestablishment of forest stands.

This area will likely never provide better than secondary vegetation for lynx use. Because lynx habitat is so limited in the project area, both now and historically, there would be no direct, indirect or cumulative effects expected from any of the alternatives.

Determination
All alternatives would have no effect on Canada lynx or their habitat; therefore, the determination is **No Effect (NE).**

Sensitive Species

California wolverine

Gulo gulo

Status

Federal Status: Species of Concern (list 1-7-00-SP-588)
USDA-Forest Service (Region 6) Status: Sensitive
State Status: Threatened (ODFW 2000)
Oregon Natural Heritage Program Status: List 2 (ONHP 2001)

Major Threats
Wolverine populations are suspected to be small, especially sensitive to disturbance, and vulnerable to local extinction (Ruggerio et al. 1994). Past decline in population may have been due primarily from fur trapping, but habitat alteration (e.g. agriculture, oil exploration, cattle grazing, rural settlement, timber harvest, road construction, and ski area development) and general human disturbance are contributing factors (TNC 1999, Witmer et al. 1998).

Population Status and Trend
Status is not well known in many portions of the range and extirpated from most of its historical range in the contiguous 48 states. Hash (1987) describes a contraction in the North American range of the wolverine beginning around 1840 with the onset of extensive exploration, fur trade, and settlement. State records suggest very low wolverine numbers in Montana, Idaho, Oregon, and Washington from the 1920s through 1950s, with increases in wolverine sightings since the 1960s (Banci 1994, Wisdom et al. 2000).

The wolverine is found in higher elevation areas of Oregon, including the Blue Mountains. It is suspected along areas of the Cascade Range. The presence of wolverine has been confirmed on the Malheur National Forest. Several reliable sightings, as well as a carcass of a juvenile wolverine found in the Strawberry Mountain Wilderness, indicate the presence of this species.

No sightings data exists for the presence of wolverine in the project area. They are not suspected to occur in the project area.

Source Habitat Trend
Basin-wide, source habitat was projected to have increased moderately or strongly in 56 percent of the watersheds. The Blue Mountains ERU has undergone a positive absolute (+27.46%) and relative (>100.00%) change in source habitat availability (moderate or strong increases in more than 50 percent of the watersheds). An increase in Blue Mountains source habitat was most influenced by an increase in mid- and late-seral montane community types (Wisdom et al. 2000).

Habitat
The wolverine occurs in a broad range of forested and non-forested habitats (Verts and Carraway 1998). Source habitats for wolverines include alpine tundra and all subalpine and montane forests. Within the forest type, all structural stages except the closed stem exclusion stage provide source habitat (Wisdom et al. 2000). The impression that wolverines require high elevation habitat may be a result of remaining wolverine populations retreating to inaccessible, undeveloped areas, which are often at high elevations (Witmer et al. 1998).

Wolverines are solitary predators that range over vast and remote territories; consequently, they are difficult to study and to survey (Rausch and Pearson 1972). Most available research indicated that wolverines were strictly associated with secluded areas and that distribution is probably limited to upper montane and sub-alpine forest types. Some recent work suggests that although wolverines may frequent upper montane and sub-alpine habitat during most of the year, they may follow migrating big game herds and scavenge on winterkills, which is considered a primary winter food source (Wisdom et al. 2000, Ruggiero 1994), to lower elevation winter range. In summer, wolverines use a variety of foods including small mammals, birds, carrion, and berries (Wisdom et al. 2000). Copeland (1996) found that carrion related food supplied 46 percent of wolverine diets in Idaho during both summer and winter. Banci (in The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States 1994) suggests that diversity of habitats and foods is important to wolverines.

Several special habitat features have been identified for wolverines. Natal dens in the western United States are generally located in subalpine basins in isolated talus fields surrounded by trees (Copeland 1996). There is also evidence that wolverine use down logs and hollow trees for denning and cavities in live trees may be used (Wisdom et al. 2000). Both talus and areas associated with large, fallen trees were used as maternal dens sites in Idaho (Copeland 1996).

Regardless of habitat type used, the critical component to suitable source habitat seems to be the absence of human activity or development (Hash 1987). High elevation forested and non-forested areas and undisturbed backcountry refugia are still considered critical to the current welfare and viability of existing wolverine populations (Hornocker and Hash 1981).

Denning Habitat
A denning habitat model developed primarily by Jeff Copeland, Idaho Department of Fish and Game, was used to identify potential wolverine denning habitat on the Malheur National Forest. Utilizing PMR (Pacific Meridian Resources Company) data and ArcInfo base coverage, key habitat components were queried to produce a forest level coverage of potential

denning habitat. Key elements included topographic relief with flat to concave curvature; slopes with north to northeast aspects, areas above 5,000-foot elevation, and rock or snow cover types. The analysis identified large areas of potential denning habitat in the Strawberry Wilderness, Monument Rock Wilderness, and in some northern portions of the Malheur National Forest. No denning habitat for wolverine exists within the Easy Fire area.

Distribution

Wolverines once occupied the boreal zone across the northern part of the continent and southward into the mountains of Colorado and California. Bailey (1936) states that wolverine were thought to be rare in the United States, but probably were not yet extinct in the Cascades and the Sierra Nevada. Since Bailey's report, numerous animals have been collected or sighted around the northwest. A query of the Oregon Natural Heritage database reveals that there are about 150 observations of wolverines in Oregon, with most occurring in the mountainous northeast (Baker, Grant, Umatilla, Union and Wallowa Counties) region (Edelmann and Copeland 1997). Confirmed observations on Malheur National Forest and adjacent areas include:

- A partial skeleton and tufts of fur found near Canyon Mountain, Grant County (1992)
- Tracks and a probable denning site found in the Strawberry Wilderness (1997)
- Tracks in Monument Rock Wilderness (1997)
- Collection of an animal from Steens Mountain, Harney County, (1973)
- Hair and track collection on Snow Mountain Ranger District, Ochoco National Forest (1992)

Additional sightings of animals and tracks have occurred on the District, but none have been confirmed.

Local Surveys

No surveys have been conducted for wolverine within the Easy project area. In the 1990's, surveys were conducted in the large, roadless or wilderness tracts associated with the Strawberry Mountain Wilderness, Dixie Butte Wildlife Emphasis Area, Dry Cabin Wildlife Emphasis Area, Vinegar Hill-Indian Rock Scenic Area, and the Shaketable, McClellan Mountain, and Aldridge Mountain Roadless Areas. No wolverine tracks or individuals were found. Surveys for marten, lynx, and wolverine were also conducted in the Silvies watershed in 1992-1994 (Gold Hill, Flat Creek, Gilbert Ridge, Myrtle Creek, Lost Creek, and Silvies River) and 1996 (Myrtle Park). Multiple baited camera stations were used, following methodology suggested by Zielinski and Kucera (1995). No wolverines were documented by camera sets. Snow track intercept surveys were also conducted in the Silvies watershed during the winters of 1992-93, 1993-94, and 1994-95. No wolverine tracks were found during these track surveys.

Existing Condition

Wolverines were always rare in Oregon, although recent sightings, tracks, and collected remains document their continued presence at low densities in the state (Csuti et al. 1997). Current distribution appears to be restricted to isolated areas. Verts and Carraway (1998) believe that while there is a possibility of self-maintaining population of wolverine in the

state, most animals seen or collected are likely dispersers from Washington and Idaho populations.

Source habitat is essentially non-existent in the project area. There are no subalpine forest types with talus surrounded by trees in or adjacent to this area. The Easy fire severely or moderately burned 4,872 acres of forested ground, eliminating the contiguous forested conditions favored by wolverine. The nearest area that approximates wolverine source habitat is located in the Aldrich and Strawberry Mountains, about 15 miles to the southwest and the Monument Rock Wilderness Area about 10 miles to the southeast.

Foraging and dispersal habitat for wolverine occurs throughout the Prairie City Ranger District. Wolverines could possibly use any area of the District to satisfy life needs; however, areas of low human impacts, low human disturbance, and potential denning sites that appear to meet range requirements are limited. The project area may provide some marginal foraging and dispersal habitat for wolverines, but it is assumed that high levels of human disturbance (management activities, firewood cutting, and recreational use) and development (primarily high road densities) make most of this area unsuitable for wolverine for summer foraging habitat. Winter foraging habitat is limited because elevations in the Easy area are above those typically associated with big game winter range. Post-fire, the loss of vegetation cover for wolverine as well as its prey species further reduces use. The likelihood of wolverine using or frequenting the area is expected to be very low.

Alternative 1 - No Action Alternative

Direct and Indirect Effects
The No Action alternative would have no direct effects to wolverine or potential habitat. Indirect effects result from potential changes in habitat for wolverine prey. By relying on natural regeneration for reforestation, recovery of trees would be slower than under a planting scenario. See the Easy Fire Recovery wildlife report for discussion of the effects of action alternatives on big game habitat. Effects to rodent foraging habitat is expected to be the same as the effects to big game foraging habitat as these animals feed on many of the same plants as deer and elk do.

The risk of an intense reburn in the project area is high with this alternative, although risks do not increase for 10 to 20 years, the time expected for snags to fall to the ground and elevate fuel loads. Another stand replacement fire would delay recovery of cover vegetation for dispersal or movement.

Cumulative Effects
Past adverse effects on wolverine foraging and dispersal habitat have been primarily a result of timber harvest and road construction; the project area has been a relatively highly managed area. In burned riparian areas, hardwood and conifer planting is being planned under separate NEPA documents. Cumulatively, restoration activities would improve habitat for wolverine prey species. Livestock grazing would be delayed for at least two years post-burn to allow for recovery of ground cover.

Reforestation is required where commercial timber harvest has occurred and the land is left under-stocked. Some conifer trees were planted during the spring of 2003. The No Action alternative would not immediately contribute any adverse cumulative effects to wolverine

prey or their habitats. Elevated fuel loads expected in 10 to 20 years increase the risk of an intense re-burn; another stand replacement fire could further delay development of cover for wolverine and its prey. Alternatives 2 and 3 also leave some burn areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining.

Determination
Due to the nature of the No Action alternative, there would be **NO IMPACT (NI)** to wolverine.

Alternatives 2, 3, 4, and 5

Direct and Indirect Effects
There are no confirmed records of this species occurring in the project area; therefore, there would be no direct effect to this species.

Indirect effects to wolverine, and its preferred habitat, would be minimal, regardless of the alternative. Post-fire, the project area is considered unfavorable for wolverine occupation. Human disturbance related to proposed salvage activities might displace transient or dispersing wolverine from potential foraging habitat during the duration of the project. Post-salvage road closures would help reduce the level of human disturbances as habitat conditions become more favorable to prey species. Areas of high ungulate density, and especially winter range, are probably key in identifying suitable wolverine foraging habitat (Witmer et al. 1998). Management recommendations by Banci (1994) suggest that management activities should incorporate strategies that improve the ungulate forage base for wolverine, without significantly changing vegetation structure. These alternatives would improve big game habitat; planting of trees would accelerate recovery of hiding and thermal cover. The Easy Fire Recovery wildlife report discusses effects of the alternatives to big game habitat. Effects to rodent foraging habitat is expected to be the same as the effects to big game foraging habitat as these animals feed on many of the same plants as deer and elk do.
Salvage logging reduces the future build-up of down logs that could impede big game movements and elevate risk of a future re-burn. Alternative 2 salvage logs the most acres (3,652 acres), followed by Alternative 3 (2,820 acres), and Alternative 4 (2,519 acres).

Alternative 5 proposes no commercial salvage harvest, fuels reduction treatments would occur removing material <7”dbh. Planting will occur on 2,524 acres that were severely burned. Planting should speed up the development of forest stands by 20 – 50 years; providing travel corridors sooner than Alternative 1. Road closures that would occur under Alternatives 2-4 will also occur with Alternative 5; reduction in road densities will reduce the impacts from human disturbance.

Table WL-4: Open Road Densities

Alternative	Open Road Density (miles per square mile)
Forest Plan Standard	3.2
Bridge Creek	
Alt. 1	3.5
Alt.'s 2, 3, 4 and 5	3.5
Clear Creek	
Alt. 1	3.0
Alt.'s 2, 3, 4 and 5	2.8
Reynolds Creek	
Alt. 1	2.0
Alt.'s 2, 3, 4 and 5	2.0

Cumulative Effects

Past adverse effects on wolverine foraging and dispersal habitat have been primarily a result of timber harvest and road construction; the project area has been relatively highly managed. In burned riparian areas, hardwood and conifer planting is being planned under separate NEPA documents. Cumulatively, restoration activities would improve habitat for wolverine prey species. Livestock grazing would be delayed for at least two years post-burn to allow for recovery of ground cover. Reforestation is required where commercial timber harvest has occurred and the land is left under-stocked. Some conifer trees were planted during the spring of 2003.

Alternatives 2 – 5 would not immediately contribute any adverse cumulative effects to wolverine prey or their habitats. Under Alternative 4 and 5, the elevated fuel loads expected in 10 to 20 years increase the risk of an intense re-burn; another stand replacement fire could further delay development of cover. Alternatives 2 and 3 also leave some burned areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining.

Alternatives 2 – 5 would contribute positively to cumulative effects by accelerating the development of hiding cover and thermal cover.

Determination

All Alternatives **may impact individuals or habita**t, **but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population (MIIH**). Human disturbance related to proposed salvage activities could have short-term, indirect effects on wolverines, although the risk of disturbance to wolverines is considered low. Wolverines are considered transient based upon their large home ranges. None of the treatment areas include denning habitat. Following management activities, road closures would reduce motorized access to the benefit of wolverines. None of the alternatives will affect wolverine habitat or species viability because the principal big game prey base is expected to remain stable or

increase. Wolverines also prey on birds and small mammals. During the first 10 – 15 years post-fire grasses and shrubs will dominate the landscape, seed and berry eating birds, and rodent populations are expected to increase. These increased bird and rodent populations may provide a larger prey base for wolverines, reducing the amount of energy expended searching for prey.

Pacific fisher

Martes pennanti

Status: Federal – Proposed (warranted but precluded)

State - Sensitive

Region 6 - Sensitive

Biology and Ecology:
Authorship and citation for the following baseline data, unless indicated otherwise, is taken from http://www.livingbasin.com/cbasin/endangered/fisher.htm

Fishers are medium sized carnivores that prey on a wide variety of foods including birds, rabbits, porcupines, and carrion. Distribution is likely governed by the availability of food but the presence of overhead cover may also be an important factor. Home range sizes of fishers vary up to 30 km^2 (about 7,400 acres) for adult males. The range of one male will overlap those of more than one female, but home ranges within adult sexes are exclusive.

Fishers are found only in North America. Their current range is reduced from that which occurred prior to European settlement of the continent, but most of this reduction has occurred in the United States (Ruggiero et al. 1994). The Fisher's range is in forested areas of central and southern Canada, south in the east to Wisconsin, Minnesota, Michigan, New York, and New England. In the west, they range south into northern Idaho, western Montana, Oregon, Washington, and the Sierra Nevada in California (Marshall 1996).

In Oregon, their range is the coastal range, Klamath Mountains, Cascade Range, and east to the Blue Mountains, and Gearhart Mountain or farther. They occur, or are likely to occur, in Baker, Clackamas, Coos, Curry, Deschutes, Douglas, Jackson, Josephine, Klamath, Lake, Lane, Linn, Tillamook, Union, and Wallowa counties. They formerly occurred in all forested counties (Marshall 1996). Parts of the Malheur National Forest are delineated to be within the fisher's range in Grant County, Oregon, according to the map found in Csuti et al. (1997).

Fishers use primarily coniferous or mixed-wood habitats. Optimum Fisher habitat consists of a diversity of forest types and, therefore, greater prey abundance. Studies have shown a preference for forests dominated by multi-layered conifer stands, and in Idaho, they prefer mesic forest habitats (Witmer et al. 1998), but some hardwoods may be desirable for maximum prey numbers and diversity. A 70 to 80 percent canopy closure is believed optimum, but a California study showed a preference for 40 to 70 percent canopy cover areas.

Fishers are known to inhabit second growth and even clearcuts after cover is established (Marshall 1996). It is not known whether the second growth and sparse overhead canopy habitats are used transiently or the basis of stable home ranges (Ruggiero et al. 1994). Large

diameter trees with cavities, especially riparian cottonwoods in British Columbia, are important as natal den sites. Fishers move to larger cavities as the young grow. Dense forest stands in the latter successional stages provide the best quality habitat, particularly in western North America. (Ruggiero et al. 1994) noted that fisher use riparian areas disproportionately more than their occurrence and exhibit a strong preference for habitats that have overhead tree cover.

In Ruggiero (1994) it has been hypothesized that the physical structure of the forest and prey associated with the structure are the critical features that explain fisher habitat use, not specific forest types. Forest structure needs to provide three important functions for fisher usage: 1) lead to a high diversity of dense prey populations, 2) lead to high vulnerability of prey to fisher, and 3) provide natal and maternal dens and resting sites.

Fishers are vulnerable to habitat loss through forestry, conversion of forests to other land uses, and hydroelectric development. Also contributing to the reduction and extirpation of Fisher populations are over-trapping and the widespread use of poisons as a harvest and predator control method. Forest harvesting elsewhere also increases access for trappers, which is a particular concern because fishers are taken in marten sets. Marshall (1996) states that timber harvesting is not considered compatible with the maintenance of maximum fisher numbers in most areas; and if severe, it will eliminate fishers. Degraded, destroyed, or fragmented habitat may result in isolated habitats that are too small to maintain viable fisher populations.

Environmental Baseline
Although only a small amount survived in the fire area there is suitable habitat adjacent. Some small portions of the older stands were only lightly or partially burned. Fisher are not known or suspected to occur in the fire area or adjacent to it. Fishers have been extirpated from much of their range due to trapping and loss of habitat due to logging (http://imnh.isu.edu/digitalatlas/splash_navigate/pcmain.htm). They are considered extirpated from Oregon (Oregon Natural Heritage Program 2001).

Conifer stands that have at least 40% canopy closure and were in the lodgepole pine, cool moist or warm dry biophysical environments were considered fisher habitat. Stand structure and availability of prey species appear to be more important than stand composition. Fishers seem to be opportunists in regards to habitat use in regards to foraging. They are more restrictive in their selection of forest stands that they will utilize for denning and resting. Forested areas that had the potential to provide denning and resting habitat for fisher survived in only small amounts in the fire area (<1%). Stands that would provide habitat for their prey species survived on about 17% of the fire area (see vegetation section).

Alternative 1
The No Action alternative proposes no harvest of dead and dying trees, no planting of burned stands or riparian areas, no construction or reconstruction of temporary spurs. The only activity that would occur would be replanting of burned plantations, or roadwork that is covered under existing NEPA.

Direct and Indirect Effects
Canopy closure will continue to increase in surviving stands that currently have canopy closure less than 40%. An estimated 1343 acres will develop at least 40% canopy closure in

the next 5-10 years. Regeneration of stands will take an extra 20 - 50 years without the planting that would occur under the 'Action Alternatives'.

Snags that were created by the fire will begin to fall immediately and by 10 – 30 years will all be on the ground. This will result in an increase in fuel loadings that will increase the risk of another severe fire event. Another severe fire event will likely burn what little potential fisher habitat remains in the area.

Cumulative Effects
Cumulative effects include past timber sales that reduced canopy closure in fisher habitat. The No Action Alternative will not contribute to the impacts of cumulative effects.

Determination of Impacts
The No Action Alternative will **Not Impact (NI)** fisher or their habitat.

Alternatives 2, 3, and 4
No changes to fisher habitat would occur from salvage harvest. Areas being salvaged no longer provide habitat suitable for fishers. The range of total acres proposed for harvest in low, moderate, and high vegetation severity burn is 2,820 – 3,652 acres.

Direct and Indirect Effects
Canopy closure will continue to increase in surviving stands that currently have canopy closure less than 40%. An estimated 1343 acres will develop at least 40% canopy closure in the next 5-10 years.

Snags that were created by the fire will begin to fall immediately and by 10 – 30 years most will be on the ground.

Connectivity Habitat
The connectivity corridor that occurred through the center of the fire experienced moderate to high vegetation severity; resulting in a substantial gap in the corridor. The riparian area of Clear Creek is maintaining some connectivity through the fire area. Salvage harvest is being excluded from all RHCAs. Because a minimum width of 400 feet is considered adequate for travel habitat, connectivity corridors along Middle Fork John Day River, Lower Idaho Creek, Clear Creek, and portions of Bridge Creek are considered adequate.

From a landscape perspective, the loss of the corridor in the Easy area should not significantly reduce the effectiveness of the connectivity that potentially links suitable areas in the northern Blue Mountains, Wallowa Mountains, and the northern Rocky Mountain province in general with potential habitat to the west in the Ochocos and Oregon Cascades.

Planting in the fire area will include: salvage harvest areas, burned riparian areas, and burned plantations. Planting of most of the plantations is being done under existing NEPA. Planting should accelerate the development of forest 20-50 years faster than what will occur under the 'No Action' Alternative.

Cumulative Effects
Cumulative effects include past timber harvest on approximately 7,000 acres of potentially suitable habitat. Only 500 of these acres have canopy closure considered necessary for fisher

habitat and another 300 acres are expected to achieve 40% in the next 5-10 years. Harvest and precommercial thinning on 1,393 with this proposed action in addition to previous harvest will result in almost 7,900 acres of the 20,300 potentially suitable fisher habitat, or 39%, being unsuitable due to management activities.

Reconstruction of Highway 26 in area between Austin Junction and Blue Mountain Summit is in progress by the Oregon Department of Transportation. The highway is being widened and some habitat will be removed. A wider highway increases the likelihood that an animal could be killed by collision with a vehicle or that movement patterns could be disrupted. The Easy project has the potential, especially in conjunction with the highway project and from the effects of past timber harvest, to effect fisher movement and dispersal.

Timber sales are likely to occur in the Galena watershed (east of the planning area) and in the Crawford subwatershed (north of the planning area). However, without a large-scale habitat assessment determining the status of fisher habitat components, the effects of cumulative actions are unknown.

Determination of Impacts
This alternative will **Not Impact (NI)** habitat, or impact individuals. Because fishers have been extirpated from Oregon, the action alternatives will not contribute to the loss of species viability or contribute to federal listing. This alternative will not impact habitat, and will not likely contribute toward federal listing or loss of viability to the population or species.

Alternative 5
Alternative 5 proposes no commercial salvage harvest, fuels reduction treatments would occur removing material <7”dbh. Planting will occur on 2,524 acres that were severely burned. Planting should speed up the development of forest stands by 20 – 50 years; providing travel corridors sooner than Alternative 1. Road closures that would occur under Alternatives 2-4 will also occur with Alternative 5; reduction in road densities will reduce the impacts from human disturbance.

Direct and Indirect Effects
Planting will directly affect the amount of time it will take the severely burned areas to regenerate, 20 – 50 years sooner than natural regeneration. Fuels treatment planned under this alternative will remove material <7”dbh on 3,652 acres. The fuels treatment will not impact the overstory that may remain in some of the treatment areas and should reduce the potential for a reburn that could further impact the area.

Cumulative Effects
Cumulative effects include past timber sales that reduced canopy closure in fisher habitat. The No Action Alternative will not contribute to the impacts of cumulative effects.

Columbia Spotted Frog

Rana luteiventris

Status
Federal Status: none
USDA-Forest Service (Region 6) Status: Sensitive (USFS 2000)

State Status: Undetermined Status (ORNHP 2000)
Oregon Natural Heritage Program Status - List 3 (OHRNP 2000)

Major Threats
Great Basin populations have been adversely affected by habitat degradation resulting from mining, livestock grazing, road construction, agriculture, and direct predation by bullfrogs and non-native fishes (NatureServe 2002). Spotted frogs are moderately impacted range-wide; its habitat lends itself to alternate uses (agriculture, development, road construction). They are fairly resistant and tolerant of nondestructive intrusion.

Populations Status and Trend
Recent intensive surveys indicate severe declines in the Great Basin populations. Declining populations in the Great Basin could be indicative of declines in the populations in the Interior Columbia River Basin. Similar threats to habitat occur in the Interior Columbia Basin as in the Great Basin. These threats to spotted frog habitat include agriculture, development, and road construction.

Habitat
Spotted frogs are highly aquatic and are rarely found far from permanent water. Breeding habitat is usually in shallow water in ponds or other quiet waters along streams. Breeding may also occur in flooded areas adjacent to streams and ponds. Adults may disperse overland in the spring and summer after breeding.

Distribution
This species occurs in extreme southeastern Alaska, southwestern Yukon, northern British Columbia, and western Alberta south through Washington east of the Cascades, eastern Oregon, Idaho, and western Montana to Nevada (disjunct, Mary's, Reese, and Owyhee river systems), southwestern Idaho (disjunct), Utah (disjunct, Wasatch Mountains and west desert), and western and north-central (disjunct) Wyoming. Disjunct populations occur on isolated mountains and in arid-land springs.

In Oregon, the Columbia spotted frog appears to be widely distributed east of the Cascade Mountains. This species is believed to be present in all subbasins on the Malheur National Forest. It is assumed widely distributed in the project area. No surveys specific for spotted frogs have been conducted in the Easy Fire area. Clear Creek and Easy Creek have the potential to support populations of these frogs.

Existing Condition
No habitat surveys have been conducted specifically for spotted frog; however, habitat probably exists along most perennial and some intermittent streams. Habitat has been degraded by past management activities, such as livestock grazing, road construction and maintenance along streams, and timber harvest adjacent to streams, springs, and marshes. Most of these management activities (timber harvest, road construction and maintenance) that would have degraded frog habitat in the past are now conducted in such a way as to minimize impacts. It is unknown what effects the Easy fire had on individual animals. Fire severity in riparian areas was variable. Generally, the fire killed most of the trees in the riparian uplands while leaving shrubs, forbs and grasses in the floodplains untouched or spot-burned due to the high moisture content of this ground vegetation. Along Clear Creek several small segments of the riparian zone were severely burned with nearly all vegetation being killed.

Alternative 1
The No Action alternative proposes no harvest of dead and dying trees, no planting of burned stands or riparian areas, no construction or reconstruction of temporary spurs. The only activity that would occur would be replanting of burned plantations, or roadwork that is covered under existing NEPA.

Direct and Indirect Effects
Habitat requirements for spotted frogs are limited, but it is assumed that if healthy stream channels and riparian vegetation are maintained, then population viability will be maintained. Under the No Action alternative, there would be no new management activities; therefore, there would be no direct effects to spotted frogs or their habitat. Although the fire killed most of the conifer overstory, the expected flush of ground vegetation, particularly shrub species, may elevate the amount and distribution of riparian hardwoods to levels higher than existed prior to the fire. Grasses and forbs are expected to reestablish naturally in 2 to 5 years; shrubs are expected to reestablish in 2 to 15 years.

Riparian vegetation likely provides cover for frogs and habitat for insects that frogs may feed on. The Easy fire created many snags that will be available for recruitment into project area streams in the future, down logs can help stabilize stream channels and create pools for frogs. Most of the smaller snags (~10-14" dbh) will fall within the first 10 years post-burn, as well as some of the larger snags. Nearly all snags will be on the ground within 30 years.

The No Action alternative would do nothing to reduce impacts of the existing road system. It would be expected that sedimentation from existing roads would increase over time, unless other projects are implemented to address these impacts. Sediment from roads or runoff from severely burned slopes would reduce water quality, potentially smother eggs, or fill in slower moving stretches of streams or pools.

Cumulative Effects
Road construction, roads, timber harvest and grazing activities on private and public land have reduced spotted frog habitat quality and complexity in and adjacent to project area streams.

The No Action alternative would not contribute to further degradation of riparian areas. Projects are being planned simultaneously to plant riparian areas with hardwood species improving riparian vegetation. Livestock grazing has been discontinued in the burn area for a minimum of 2 to 3 years. Without fuels reduction there is an increased risk of a future fire event that would impact soils and vegetative cover; potentially increasing the sediment flows into streams. In the short-term, restoration activities could impact individuals or habitat. In the long-term, these actions will help reestablish riparian vegetation and stream integrity to the benefit of spotted frogs.

Determination
The No Action Alternative will **Not Impact (NI)** habitat, or individuals.

Alternatives 2, 3 and 4 - Action Alternatives

Direct and Indirect Effects
Habitat requirements for spotted frogs are limited, but it is assumed that if healthy stream channels and riparian vegetation are maintained, then population viability will be maintained. Spotted frogs are fairly resistant and tolerant of nondestructive intrusion.

Salvage logging and fuels reduction activities should have minimal adverse effects to Columbia spotted frogs or their habitat. In the short term management activities could increase sediment inputs into streams that are potentially habitat for spotted frogs. After the first couple years the reestablishment of grasses and shrubs should stabilize the soils sufficiently to minimize sedimentation. Utilizing INFISH RHCA buffers along the streams should minimize the amount of sediment getting into the streams. There may be limited felling of hazard trees in RHCAs, but the trees would be left on site. It is unlikely that felling of hazard trees would kill spotted frogs, and effects to habitat would be considered minimal. Harvest and fuels treatment activities outside riparian areas are expected to have little to no indirect impacts on riparian and aquatic systems. Vegetation recovery and recruitment of snags in stream channels would be as described for Alternative 1, both considered beneficial to the riparian and aquatic system. The activities with the highest potential for affecting streams are road management activities, particularly those that directly affect riparian vegetation, floodplains, or stream channels.

Alternatives 2, 3, and 4 propose 1.8, 1.5, and 1.5 miles of temporary road construction respectively. The temporary road construction is for short spur roads to access harvest units. These temporary roads will be decommissioned after use. The temporary road construction is not within RHCAs. Road effects are typically magnified when activities occur within 100 feet of stream. Proposed road management actions such as culvert replacement or cleaning at stream crossings, or road decommission, reconstruction, or maintenance within 100 feet of streams would produce short-term (1-2 years) sediment into project area streams. These activities have the potential to adversely affect spotted frog habitat by increasing fine sediments in the short-term, although sediment may be less of a concern for frogs than fish species. The short-term increase in sediment would be very small in size and scale due to the small area of disturbance at each project point. Best management practices (BMPs) are incorporated into standard road maintenance and reconstruction practices and would reduce the probability and magnitude of the short-term risks. In the mid- to long-term, road reconstruction and maintenance would reduce the chronic sediment production of existing roads by removing ruts and rills from the driving surface, adding less erosive surfacing material, and improving drainage. Road decommissioning is designed to benefit riparian habitat and water quality in the mid- to long-term by improving filtration, restoring ground cover, reducing sediment yield and restoring floodplains.

Cumulative Effects
Other ongoing projects in the Easy riparian areas are discussed under Alternative 1, cumulative effects. The Action alternatives would not contribute to further degradation of riparian areas. The road management activities associated with the action alternatives are expected to contribute long-term benefits to the recovery of spotted frog habitat, more so than the No Action alternative, likely improving conditions beyond the pre-fire baseline.

Determination
In summary, the Action Alternatives **May impact individuals or habitat, but would not likely contribute to a trend towards Federal listing or loss of viability to the population or species (MIIH).** The only short-term impacts to spotted frogs would be those from road maintenance or decommission activities that occur within 100 feet of streams; anticipated sediment impacts are expected to have a negligible effect to spotted frogs or populations. However, the long-term reduced impacts to riparian aquatic resources (also due to road management activities) would result in a **Beneficial Impact** for spotted frogs.

Alternative 5
Alternative 5 proposes no salvage harvest; but proposes planting severely burned areas (2,354 acres) and riparian areas (170 acres), closes Road 2600-391 year-round, replaces DOG/ROG 364 with a new DOG and ROG, and fuels treatment of dead and dying trees <7”dbh on 3,652 acres.

Direct and Indirect Effects
Habitat requirements for spotted frogs are limited, but it is assumed that if healthy stream channels and riparian vegetation are maintained, then population viability will be maintained. Spotted frogs are fairly resistant and tolerant of nondestructive intrusion.

Planting of severely burned areas without salvage harvest will reduce the potential for sediment to get into the streams. Planting in riparian reserves will help reduce sediment input into streams reducing the potential impact on these frogs as well as provide shade and cover to the streams keeping the water temperature lower.
Other activities related to this alternative would not impact these frogs or their habitat. The proposed fuels reduction should not increase sediment input and should reduce the risk of another large-scale severe fire. Closing Road 2600-391 may slightly decrease the potential for sediment input from the road. Other road maintenance activities planned under this EIS would occur. Construction of temporary roads would not occur under this alternative.

Cumulative Effects
Other ongoing projects in the Easy riparian areas are discussed under Alternative 1, cumulative effects. The Action alternatives would not contribute to further degradation of riparian areas. The road management activities associated with the action alternatives are expected to contribute long-term benefits to the recovery of spotted frog habitat, more so than the No Action alternative, likely improving conditions beyond the pre-fire baseline.

Determination
In summary, Alternative 5 should have **No impact on individuals or habitat.**

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